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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,558	01/03/2002	Thierry Crost	02508.0092	2328
7590	01/13/2005		EXAMINER	
Finnegan Henderson Farabow Garrett & Dunner 1300 I Street NW Washington, DC 20005			KIM, SUN U	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,558

Applicant(s)

CROST ET AL.

Examiner

John Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>see action</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The information disclosure statement (IDS) submitted on 9/27/01, 7/12/02 and 10/28/04 has been considered by the examiner.

2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,177,013 (Thomas et al.) in view of U.S. Patent No. 5,840,190 (Scholander et al.). Thomas et al teach a membrane exchanger comprising two compartments separated by a composite semipermeable hollow fiber or flat membrane comprising a copolymer of polyacrylonitrile and of sodium methallyl sulphonate and 4 mg/m² polyethyleneimine (PEI) of 750k daltons bonded thereto (see Example 1 in col. 10, line 16 – col. 11, line 30) wherein the steps of making such membrane is disclosed to include claimed steps (a)-(d) in claim 15 (see col. 7, line 8 – col. 8, line 47). Specification discloses that PEI of 750k dalton is used which is sufficient in size not to pass through the semipermeable support membrane (see Example 1; page 13, line 16 – page 14, line 18). Claims 1-12 and 14-20 essentially differ from the method and membrane of Thomas et al in reciting an anticoagulant carrying anionic groups such as heparin which are capable of forming ionic bond with the cationic groups of the cationic polymer such as polyethyleneimine. Scholander et al teach that bioactive compound on a membrane surface confers biocompatibility to the surface by interacting with the defense systems of the body in order to prevent activation, or to inactivate compounds created in such defense reactions and the bioactive compound to be coupled to the surface is selected from the group glycosaminoglycans, typically heparin, and other negatively charged bioactive compounds are immobilized to inherently positively charged surface of polyethyleneimine (see col. 4, line 37 – col. 5, line 67, particularly, col. 5, lines 6-8, 30-36, 62-67; col. 14, lines 23-38). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to ionically bond negatively charged bioactive

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compound such as heparin in glycosaminoglycan family to the positively charged polyethyleneimine surface of the membrane of Thomas et al for providing stable anticoagulatory effect in blood filtration as suggested by Scholander et al.


3. Applicant's arguments filed 9/24/04 have been fully considered but they are not persuasive. Applicants argue that Claims 1 and 15 are not obvious over Thomas et al and Scholander et al because neither reference teaches or suggests the claimed membrane or method including "a membrane...of a polyacrylonitrile carrying anionic or anionizable groups...coated...with a cationic polymer...capable of forming an ionic bond with...the polyacrylonitrile, the cationic polymer comprising chains whose size is sufficient for the chains not to pass through the semi-permeable membrane." However, Thomas et al teach a membrane...of a polyacrylonitrile carrying anionic or anionizable groups...coated (see col. 10, lines 17-57)...with a cationic polymer (see col. 6, lines 6-27)...capable of forming an ionic bond with...the polyacrylonitrile (see col. 5, lines 43-59), the cationic polymer comprising chains whose size is sufficient for the chains not to pass through the semi-permeable membrane (see col. 10, lines 31-33)" wherein Specification discloses that PEI of 750k dalton is used which is sufficient in size not to pass through the semipermeable support membrane (see Example 1; page 13, line 16 – page 14, line 18).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kim whose telephone number is (571) 272-1142. The examiner can normally be reached on weekdays from 8:30 A.M. to 5:00 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John Kim
Primary Examiner
Art Unit 1723

J. Kim
January 11, 2005